CROSS-AGENCY SUPPORT

Budget Authority (in $ millions)	Actual	Estimate		Notional			
	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
FY 2013 President's Budget Request	2,956.4	2,993.9	2,847.5	2,847.5	2,847.5	2,847.5	2,847.5
Center Mangement and Operations	2,189.0	2,204.1	2,093.3	2,093.3	2,093.3	2,093.3	2,093.3
Agency Mangement and Operations	767.4	789.8	754.2	754.2	754.2	754.2	754.2

CROSS-AGENCY SUPPORT (CAS)

FY 2013 BUDGET

Budget Authority (in $ millions)	Actual FY 2011	Estimate FY 2012	FY 2013	Notional			
				FY 2014	FY 2015	FY 2016	FY 2017
FY 2013 President's Budget Request	**2,956.4**	**2,993.9**	**2,847.5**	**2,847.5**	**2,847.5**	**2,847.5**	**2,847.5**
Center Management and Operations	2,189.0	2,204.1	**2,093.3**	2,093.3	2,093.3	2,093.3	2,093.3
Agency Management and Operations	767.4	789.8	**754.2**	754.2	754.2	754.2	754.2
Change From FY 2012 Estimate	--	--	**-146.4**				
Percent Change From FY 2012 Estimate	--	--	**-4.9%**				

Note: *FY 2011 actuals have been adjusted for comparability. FY 2011 actuals are reduced to show the realignment of Innovative Partnerships Program to the Space Technology account.*

The Space Power Facility is the world's largest vacuum chamber, 100 ft. in diameter by 122 ft. high, in which large space-bound hardware can be tested by simulating environmental conditions encountered in space. In support of NASA's diverse missions, Space Power Facility test programs have included high-energy experiments, rocket-fairing separation tests, Mars Lander system tests, deployable Solar Sail tests and ISS hardware tests.

CAS provides critical mission support capabilities necessary to maintain the operation and administration of the Agency that cannot be directly aligned to specific program or project requirements. The mission support functions align to and sustain institutional capabilities for supporting NASA's mission portfolio by leveraging resources to meet mission needs, establishing Agency-wide capabilities, and providing institutional checks and balances. CAS institutional capabilities ensure that Agency operations are effective and efficient and that activities are conducted in accordance with all statutory, regulatory, and fiduciary responsibilities. CAS program capabilities ensure that vital skills and assets are ready and available to meet technical milestones for programs and projects, that missions and research are technically and scientifically sound, and that Agency practices adhere to standards and processes that provide safety and reliability through proper management of risk.

NASA's CAS account includes two themes: Center Management and Operations (CMO) and Agency Management and Operations (AMO).

CROSS-AGENCY SUPPORT (CAS)

EXPLANATION OF MAJOR CHANGES FOR FY 2013

In FY 2013, the CAS account reflects a reduction of $146.4 million compared to the FY 2012 estimated level. This decrease in funding represents a reduction in basic Center and Headquarter services, such as facilities maintenance and repair and IT services. NASA will partially offset the decrease by savings achieved through the implementation of the Administration's Campaign to Cut Waste and Executive Order 13589, "Promoting Efficient Spending" across all Centers and Headquarters.

ACHIEVEMENTS IN FY 2011

In FY 2011, NASA initiated a Technical Capabilities Assessment Task to actively take steps towards right-sizing the Agency's infrastructure. Centers have since taken significant steps towards realigning their infrastructure to new mission requirements.

KEY ACHIEVEMENTS PLANNED FOR FY 2013

In FY 2013, the Mission Support Directorate will continue the reassessment of NASA technical capabilities in addition to improving the security of the Agency's Web applications and IT security assets.

BUDGET EXPLANATION

The FY 2013 request is $2,847.5 million. This represents a $146.4 million decrease from the FY 2012 estimate ($2,993.9 million). The FY 2013 request includes:

- $2,093.3 million for CMO that funds the ongoing management, operations, and maintenance of all NASA Centers.
- $754.2 million for AMO that provides functional and administrative oversight for the Agency, including NASA Headquarters operations.

Themes

CENTER MANAGEMENT AND OPERATIONS (CMO)

CMO directly supports Agency programs and projects that reside at and are executed by NASA Centers. This theme provides for the care of institutional assets, establishing and maintaining the staff and their competencies, and the maintenance and operation of facilities required by current and future programs and projects at the Centers. Center Institutional Capabilities provides resources, oversees the assignment

CROSS-AGENCY SUPPORT (CAS)

of workforce and facilities, and manages Center operations. Center Program Capabilities sustains the technical facilities, workforce expertise and skills, equipment, tools, and other resources required to facilitate program and project execution.

AGENCY MANAGEMENT AND OPERATIONS (AMO)

AMO provides for the management and oversight of Agency missions, programs, functions and performance of NASA-wide mission support activities. AMO activities at NASA Headquarters ensure that core services are ready and available Agency-wide for performing mission roles and responsibilities, Agency operations are effective and efficient, and activities are conducted in accordance with all statutory, regulatory, and fiduciary requirements.

CENTER MANAGEMENT AND OPERATIONS (CMO)

FY 2013 BUDGET

Budget Authority (in $ millions)	Actual FY 2011	Estimate FY 2012	FY 2013	Notional			
				FY 2014	FY 2015	FY 2016	FY 2017
FY 2013 President's Budget Request	**2,189.0**	**2,204.1**	**2,093.3**	**2,093.3**	**2,093.3**	**2,093.3**	**2,093.3**
Center Institutional Capabilities	1,710.8	1,703.4	**1,628.5**	1,623.6	1,617.0	1,606.7	1,594.2
Center Programmatic Capabilities	478.1	500.7	**464.8**	469.7	476.3	486.6	499.1
Change From FY 2012 Estimate	--	--	**-110.8**				
Percent Change From FY 2012 Estimate	--	--	**-5.0%**				

NASA is comprised of its Headquarters in Washington, DC, nine Centers across the country, and JPL, a federally funded research and development center operated under a contract with the California Institute of Technology. Other NASA facilities include: Plum Brook Station, Sandusky, OH, managed by GRC; the Software Independent Verification and Validation Facility (IV&V), Fairmont, WV, and Wallops Flight Facility (WFF), Wallops, VA, both managed by GSFC; Michoud Assembly Facility (MAF), New Orleans, LA, managed by MSFC; and the White Sands Test Facility (WSTF) and Space Network, White Sands, NM, managed by JSC.

NASA's CMO budget request funds the ongoing management, operations, and maintenance of nine NASA Centers, including three major component facilities in 10 states. The CMO budget enables NASA to execute its mission at the Centers by providing the resources required to effectively oversee the assignment of workforce and facilities. Center operations facilitate program and project execution while ensuring that statutory, regulatory, and fiduciary compliance requirements are met.

CMO funds a wide variety of essential operations, including Center security, environmental management and safety services, facility maintenance, and operations. Operations budgets provide utilities, IT services, legal, and occupational health, equal employment opportunity, and human resource services to support Agency's Center-based civil servants.

Operations also includes Center management, and support for Agency-wide technical and logistics requirements, (e.g. science, engineering and technical authority staff and resources). CMO consists of two project level funding, Center Institutional Capability and Center Program Capability.

CENTER MANAGEMENT AND OPERATIONS (CMO)

CENTER INSTITUTIONAL CAPABILITY

Center Institutional Capability encompasses a diverse set of activities including financial and human capital management, acquisition services, facility maintenance, utilities, information technology, and safety and security. This capability manages and sustains the Center staff, facilities, and operations required for program and project execution. It also provides for the ongoing operations of NASA Centers, including three major component facilities, ensuring a safe, healthy, and environmentally responsible workplace. The Agency's coordinated approach to institutional management is an essential element in preserving unique national capabilities relied upon by NASA, industry, academia, and other government agencies.

NASA'S participation in the Administration's Campaign to Cut Waste will result in $200 million in savings in administrative costs. Agency-wide in FY 2013 compared to FY 2010 levels. However, contractor labor, utility, and operations costs continue to grow at a higher rate than inflation. The FY 2013 budget request will offset these increases by implementing additional cost savings reductions to travel, printing, reproduction, and other administrative costs, bringing the Center Institutional Capability request to approximately three percent ($48M) higher than the FY 2008 budget level.

CENTER PROGRAM CAPABILITY

NASA's Center Program Capability supports the Agency's scientific and engineering activities by providing engineering assessment and safety oversight pertaining to the technical readiness and execution of NASA programs and projects. It also sustains NASA's analysis, design, research, test services, and fabrication capabilities enabling efficient execution of the programs and projects hosted at the Centers. A key component of NASA's overall system of checks and balances is provided within Technical Capabilities through formally delegated Technical Authorities. The Technical Authorities at NASA's Centers provide independent oversight and review of programs and projects in support of safety and mission success. This is to assure that NASA's activities are safely implemented in accordance with accepted standards of professional practice and applicable NASA requirements.

EXPLANATION OF PROGRAM CHANGES

The CMO budget reflects reductions of basic Center support, including planned facilities maintenance and repair, custodial, IT, financial management, and similar support activities.

The program also reflects consolidation of Agency-wide IT contracts under AMO Agency Information Technology Services (AITS).

CENTER MANAGEMENT AND OPERATIONS (CMO)

ACHIEVEMENTS IN FY 2011

The Mission Support Directorate initiated the NASA Technical Capabilities Assessment Task to actively take steps towards right-sizing the Agency's infrastructure, as directed by the NASA Authorization Act of 2010. These efforts are being aligned with the on-going activities to re-scope the Agency's capabilities as part of the transition from the Space Shuttle and the Constellation Systems Programs. In FY 2011, the Centers have taken numerous steps towards realigning their infrastructure to new mission requirements.

Langley Research Center: The Agency approved the decision to shut down the CF4 and the Unitary Planned wind tunnels beginning in FY 2012.

Johnson Space Center: Mission support approved the decision to shut down the JSC Arc Jet Facility in FY 2013. The Agency plans to utilize the Arc Jet Facility at ARC, consolidating entry descent and landing related testing. JSC will close the facility following the completion of planned testing in FY 2012.

White Sands Test Facility (WSTF): As a result of the conclusion of the Space Shuttle Program, the rocket propulsion testing (RPT) facilities at WSTF are currently being transitioned. In FY 2013, three facilities will remain active, five will be closed, and one will be put in inactive standby.

Marshall Space Flight Center: Pending historical considerations, MSFC plans to demolish approximately 33 structures through FY 2017 and transition through FY 2012 approximately 40 buildings to a shut down/standby status. This includes facilities no longer needed for the cancelled Constellation Systems program.

Kennedy Space Center: The Center plans to abandon, return to the U.S. Air Force, or find alternate entities to utilize the following infrastructures: Hypergol Maintenance Facility, Processing Control Center, Orbiter Processing Facility, Parachute Refurbishment Facility, Hangar M Annex, Hangar S, Hangar AF, Solid Rocket Booster recovery ships, and Mobile Launch Platforms 1 and 2.
The majority of the facilities/capabilities listed are being divested as a result of the conclusion of the Space Shuttle program. NASA/KSC has entered into an agreement with the State of Florida for the use of the Orbiter Processing Facility Number 3 and the Processing Control Center to support ongoing commercial space activities that the State is pursuing. As part of this agreement, the State of Florida has taken over responsibility for the operations and maintenance of the facilities. The ultimate disposition of the remaining NASA facilities at KSC and Cape Canaveral Air Force Station will be determined after FY 2013 Shuttle Transition and Retirement efforts.

Stennis Space Center: The Center consolidated its Hardware Assurance Testing Contract with its Test Operations Contract, as Space Shuttle main engine testing is no longer required. The consolidation will reduce support contractor infrastructure and increase efficiency.

CENTER MANAGEMENT AND OPERATIONS (CMO)

KEY ACHIEVEMENTS PLANNED FOR FY 2013

NASA will implement an Agency-wide reduction in printing and reproduction, travel, supplies and materials, IT devices, executive fleet, and extraneous promotional items in support of efficiency initiatives.

Mission Support Directorate plans to continue the re-alignment efforts of Agency's infrastructure through the NASA Technical Capabilities Assessment task. The directorate will remain engaged with programs and Centers in re-assessing NASA's technical capabilities with respect to near and long-term programmatic demand and realigning the infrastructure accordingly.

The Agency plans to continue consolidating the IT data centers across the NASA Centers. By the end of FY 2013, the Agency plans to reduce the number of data centers by 53 percent from the FY 2010 baseline. This data center consolidation will result in energy savings of approximately $600 thousand per year from the FY 2010 baseline.

BUDGET EXPLANATION

The FY 2013 request is $2,093.3 million. This represents a $110.8 million decrease from the FY 2012 estimate ($2,204.1 million). The FY 2013 request includes:

- $1,628.5 million for Center Institutional Capabilities; and
- $464.8 million for Center Program Capabilities.

TECHNICAL AUTHORITY

SMA TECHNICAL AUTHORITY

($ in millions)		Notional			
Center	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Ames Research Center	3.7	3.7	3.7	3.7	3.7
Dryden Flight Research Center	6.2	6.2	6.2	6.2	6.4
Glenn Research Center	2.2	2.2	2.2	2.2	2.2
Goddard Space Flight Center	11.5	11.5	11.5	11.5	11.5
Johnson Space Center	6.6	6.6	6.6	6.6	6.6
Kennedy Space Center	10.3	10.3	10.3	10.3	10.3
Langley Research Center	3.5	3.5	3.5	3.6	3.7
Marshall Space Flight Center	6.9	6.9	6.9	7.2	7.4
Stennis Space Center	1.5	1.5	1.5	1.5	1.5
NASA Total	**52.3**	**52.3**	**52.3**	**52.6**	**53.4**

ENGINEERING TECHNICAL AUTHORITY

($ in millions)		Notional			
Center	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017
Ames Research Center	7	7.2	7.5	7.9	8.3
Dryden Flight Research Center	6.7	6.9	7.2	7.6	7.9
Glenn Research Center	13.1	13.4	14.1	14.8	15.5
Goddard Space Flight Center	9.6	10	10.5	11	11.6
Johnson Space Center	20.5	20.5	21.4	22.5	23.5
Kennedy Space Center	14.1	14.9	15.6	16.2	17.1
Langley Research Center	17.3	18	18.8	19.7	20.6
Marshall Space Flight Center	35.4	35.4	35.4	35.4	35.4
Stennis Space Center	3.1	3.1	3.1	3.1	3.1
NASA Total	**126.8**	**129.4**	**133.7**	**138.2**	**143**

TECHNICAL AUTHORITY

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AGENCY AND MANAGEMENT OPERATIONS (AMO)

FY 2013 BUDGET

Budget Authority (in $ millions)	Actual FY 2011	Estimate FY 2012	FY 2013	Notional			
				FY 2014	FY 2015	FY 2016	FY 2017
FY 2013 President's Budget Request	767.5	789.8	754.2	754.2	754.2	754.2	754.2
Change From FY 2012 Estimate	--	--	-35.6				
Percent Change From FY 2012 Estimate	--	--	-4.5%				

Note: *FY 2011 actuals have been adjusted for comparability. FY 2011 actuals are reduced to show the realignment of Innovative Partnerships Program to the Space Technology account.*
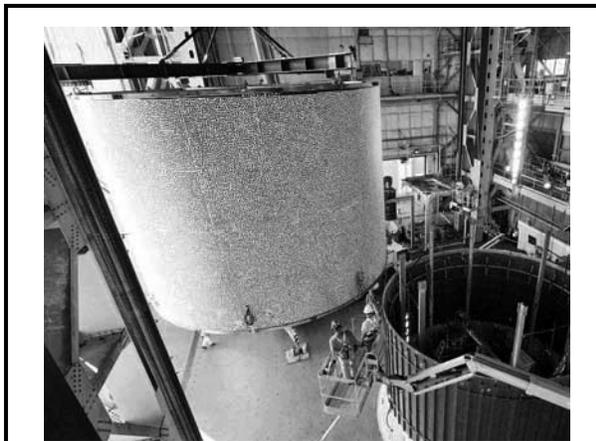
The Office of the Chief Engineer, and the NASA Engineering and Safety Center are key to NASA's program excellence. OCE ensures missions are planned and conducted with sound engineering and management practices, and the NESC taps technical expertise within NASA and from external partners. Both enabled the Shell Buckling Knockdown Factor test to capture precise measures of deformation on a fully-instrumented massive 27.5-foot-diameter, 20-foot-tall barrel during combined axial compression and bending tests. Results suggested NASA's next generation launch vehicles may be modified to significantly reduce weight and cost, lessening development and performance risks.

AMO provides for the management and oversight of Agency missions, programs, functions and performance of NASA-wide mission support activities. AMO activities at NASA Headquarters ensure that core services are ready and available Agency-wide for performing mission roles and responsibilities, Agency operations are effective and efficient, and activities are conducted in accordance with all statutory, regulatory, and fiduciary requirements.

NASA Headquarters develops policy and guidance for the Centers and provides strategic planning and leadership. Headquarters establishes Agency-wide requirements and capabilities that improve collaboration, efficiency, and effectiveness. Agency management leverages resources and capabilities to meet mission needs, eliminate excess capacity, and scale assets accordingly. Centers establish programs and initiatives to maximize individual and organizational capabilities.

AMO provides for policy-setting, executive management, and direction for all essential corporate functions such as human capital, finance, IT, infrastructure, procurement, legal counsel, protective services, occupational health and safety, equal opportunity and diversity, small business programs, external relations, and strategic communications. AMO also supports the operational costs of the Headquarters installation. The AMO theme is divided into four programs: Agency Management, SMS, AITS, and SCAP.

AGENCY AND MANAGEMENT OPERATIONS (AMO)

EXPLANATION OF PROGRAM CHANGES

There are no programmatic changes.

ACHIEVEMENTS IN FY 2011

The NASA Management Office at JPL, in partnership with the city of Pasadena, completed construction and began operation of a new 7000 gallons-per-minute groundwater treatment plant, which provides drinking water to city customers. This plant serves to clean up chemicals in the groundwater for which NASA is responsible and returns use of the aquifer to the city for water supply purposes.

KEY ACHIEVEMENTS PLANNED FOR FY 2013

Consistent with the NASA Authorization Act of 2010, the SMS program will enhance its orbital debris and counterfeit parts tracking and reporting programs. Counterfeit electrical components may cause failure resulting in loss of a mission or, in the case of manned missions, loss of life.

During FY 2013, NASA will continue to expand its capabilities to improve the security and safeguard of Web applications and IT security assets, enhance Security Operations Center (SOC) capabilities, and expand real-time continuous monitoring and risk management capabilities.

BUDGET EXPLANATION

The FY 2013 request is $754.2 million. This represents a $35.6 million decrease from the FY 2012 estimate ($789.8 million). The FY 2013 request includes:

- $391.8 million for Agency Management to provide management and oversight of Agency missions, programs, and functions of NASA-wide mission support activities;
- $182.4 million for SMS (including IV&V) which includes NASA Headquarters programs providing technical excellence, mission assurance, and technical authority;
- $152.0 million for AITS to ensure IT excellence to achieve success of NASA missions; and
- $28.0 million for SCAP which includes ensuring test facilities identified as essential by the Agency are in a state of readiness. This supports the core capabilities of thermal vacuum chambers, simulators, and the Arc Jet Facility.
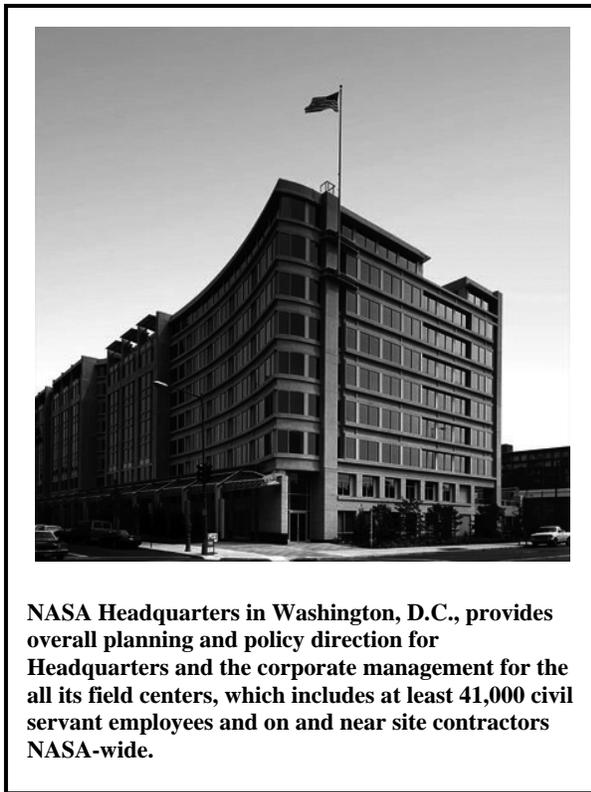
AGENCY MANAGEMENT

FY 2013 BUDGET

Budget Authority (in $ millions)	Actual FY 2011	Estimate FY 2012	FY 2013	Notional FY 2014	FY 2015	FY 2016	FY 2017
FY 2013 President's Budget Request	401.9	403.2	391.8	391.8	391.8	391.8	391.8
Change From FY 2012 Estimate	--	--	-11.4				
Percent Change From FY 2012 Estimate	--	--	0.0				

Note: *FY 2011 actuals have been adjusted for comparability. FY 2011 actuals are reduced to show the realignment of Innovative Partnerships Program to the Space Technology account.*

NASA Headquarters in Washington, D.C., provides overall planning and policy direction for Headquarters and the corporate management for the all its field centers, which includes at least 41,000 civil servant employees and on and near site contractors NASA-wide.

Agency Management provides governance and functional and administrative management oversight for the Agency and operational support for NASA Headquarters. This program function primarily supports ongoing operations. Agency Management support reflects the activities required for being in business in the Federal sector and provides the capability to respond to legislation and other mandates (for example, the Homeland Security Policy Directive -12, the universal identification standard that streamlines access to buildings and computer networks). Other examples of legislation and mandates to which the Agency must comply and provide assessments include the Freedom of Information Act and Equal Employment Opportunity compliance with Section 508 for IT. The Agency Management program supports over 35 discrete operations and mission support projects with over 210 separate activity line items.

Agency Management provides policies, controls, and oversight across a range of functional and administrative management service areas. Agency Management governance and oversight activities include finance, protective services, general counsel, public affairs, external relations, legislative affairs, training, human capital, procurement, real property and infrastructure, budget management, systems support, internal controls, diversity, equal opportunity, independent program and cost evaluation, and small business programs.

NASA is taking proactive steps to manage the daily operational activities for maximum efficiency and effectiveness within the allocated fund control levels.

AGENCY MANAGEMENT

The Agency Management program supports operational activities of Headquarters as an installation. These activities include building lease costs, facility operations costs (such as physical security, maintenance, logistics, information technology hardware, and software costs), and automated business systems implementation, and operations costs like initiatives related to transparency and accountability in government.

Agency Management activities are performed at NASA Headquarters, with critical support provided by the NASA Centers. Distributed Agency Management activities are also performed at the NASA Management Office at the JPL, JHU-APL, and the NASA Shared Services Center (NSSC) at SSC.

EXPLANATION OF MAJOR CHANGES FOR FY 2013

There are no program changes.

ACHIEVEMENTS IN FY 2011

To facilitate the assessment of Agency's technical capabilities, the Agency developed a new database tool, the NASA Technical Capabilities Database. The purpose of the database is to house the information concerning the supply of Center-respective technical capabilities and their associated resources and to map them to projected mission demand across the Agency as part of the NASA Technical Capabilities task. The task aims to balance the institutional capabilities with the needs of the Agency's future missions.

KEY ACHIEVEMENTS PLANNED FOR FY 2013

Agency Management will deliver policies, controls, and oversight across a range of functional and administrative management service areas, and provide independent assessments and strategic planning services. Agency Management will also direct activities in procurement, finance, human capital, real property and infrastructure, protective services, diversity, equal opportunity, and small business.

BUDGET EXPLANATION

The FY 2013 request is $391.8 million. This represents a $11.4 million decrease from the FY 2012 estimate ($403.2 million).

The FY 2013 request includes $391.8 million for ongoing functional and administrative management oversight for the Agency and operational support for NASA Headquarters, as an installation, through the more than 35 discrete operations and mission support projects. Some specific requirements include

AGENCY MANAGEMENT

overseeing and managing the renovation of the headquarters building as a result of the lease renewal in FY 2011 and bringing the building up to the silver level of the Leadership in Energy and Environmental Design (LEED) building.

Projects

The Agency Management budget encompasses the costs of operating and commissioning NASA Headquarters as a Center. This includes the management and sustainment of the Headquarters employees and contractors, facilities, and operations required for program and institutional execution. The Agency Management budget also supports a diverse set of activities and projects at both the Agency and Center levels and includes the following:

- IT and communications infrastructure hardware and software acquisitions and maintenance, and contracted services for IT support;
- Facility operations support, including physical security, custodial, and maintenance services; equipment; expendable supplies; mail services; printing and graphics; motor pool operations; logistics services; emergency preparedness;
- Human resources staffing; employee payroll and benefits processing; retirement services; employee training; employee occupational health/fitness and medical services; and grants awards processing;
- Headquarters operations costs, including support provided by GSFC for accounting and procurement operations; operations support; configuration maintenance; automated business and administrative systems; contract close-out services; and payments to the Office of Naval Research for grants management;
- Human resources at both the Headquarters and Agency Equal Employment Offices (EEO), which engage the Agency in proactive equal opportunity and diversity-inclusion initiatives in NASA-funded science, technology, engineering, and mathematics (STEM) and related programs in contributing to the Agency's STEM workforce development; and alternate dispute resolution services and complaint investigations;
- The Chief Financial Officer (CFO), who upholds strong strategic planning, budget and financial management and accountability practices, while providing timely, accurate, and reliable information, and enhancing internal controls;
- The Office of Protective Services, which includes policy formulation; oversight, coordination and management of NASA protective services operations, including security, fire, emergency management, and emergency preparedness; support for Agency counterintelligence and counter-terrorism activities; implementation of the identity, credentials and access management systems and other security systems, including communications; continuity of operations; and national intelligence community services; and

AGENCY MANAGEMENT

- The Office of Strategic Infrastructure, which provides technical expertise and oversight of Agency infrastructure and management systems for: aircraft, environmental, real property, logistics, and strategic capabilities programs.

In FY 2011, the Agency received a clean audit opinion of its accounting and financial systems, the first clean opinion in nine years. Under the leadership of the Office of Human Capital Management, NASA was again recognized as one of the top five agencies for which to work, as determined by the Partnership for Public Performance.

To provide the widest practicable and appropriate dissemination of information concerning NASA activities, the Office of Communications maintained the http://www.nasa.gov Web site, which was honored with its third consecutive Webby Award, the industry's highest honor for the most popular Web site in Federal Government.

SAFETY AND MISSION SUCCESS (SMS)

FY 2013 BUDGET

Budget Authority (in $ millions)	Actual FY 2011	Estimate FY 2012	FY 2013	Notional			
				FY 2014	FY 2015	FY 2016	FY 2017
FY 2013 President's Budget Request	**191.2**	**198.2**	**182.4**	**182.4**	**182.4**	**182.4**	**182.4**
Safety and Mission Assurance	48.1	49.4	**47.8**	47.8	47.8	47.8	47.8
Chief Engineer	99.2	105.2	**98.6**	98.6	98.6	98.6	98.6
Chief Health and Medical Officer	4.0	4.5	**4.3**	4.3	4.3	4.3	4.3
Independent Verification and Validation	39.9	39.1	**31.7**	31.7	31.7	31.7	31.7
Change From FY 2012 Estimate	--	--	**-15.8**				
Percent Change From FY 2012 Estimate	--	--	**-8.0%**				

Knowing the remaining life of a pressure vessel is a critical safety issue for all commercial, civil, and military missions that use composite pressure vessels (fire, naval, residential, land transportation, public transportation, mining, aviation, space, medical), NASA engineers are developing nondestructive evaluation health monitoring sensing systems for smart composite overwrapped pressure vessels to determine its remaining life. The bottom photo shows a pressure test to catastrophic failure.

SMS includes NASA Headquarters programs providing technical excellence, mission assurance, and technical authority. SMS also includes the corporate work managed by the Office of the Safety and Mission Assurance and its NASA Safety Center (NSC) and IV&V Facility, the Office of Chief Engineer (OCE) (including the NASA Engineering and Safety Center, or NESC), and the Office of the Chief Health and Medical Officer (OCHMO). The elements of SMS reflect the recommendations of many studies, boards, and panels. These programs directly support NASA's core values and serve to improve the likelihood for safety and mission success for NASA's programs, projects, and operations while protecting the health and safety of NASA's workforce.

SMS develops policy and procedural requirements. It provides recommendations to the Administrator, mission directorates, Center Directors, and program managers who, due to their line management responsibilities, are ultimately accountable for the safety and mission success of all NASA activities and the safety and health of the workforce. SMS resources provide the foundation for NASA's system of checks and balances, enabling the effective application of the strategic management framework and the technical authorities defined in NASA's Strategic Management and Governance Handbook. SMS funding trains and

SAFETY AND MISSION SUCCESS (SMS)

maintains a competent technical workforce within the disciplines of system engineering (including system safety, reliability, and quality) and space medicine.

Resources provided by SMS are essential for evaluating the implications on safety and mission success, including the health and medical aspects of new requirements and departures from existing requirements. With this funding, discipline experts analyze the criticality of the associated risk and evaluate the risk acceptability through an established process of independent reviews and assessments. The information and advice from these experts provides critical data that is used by the technical authorities to develop authoritative decisions related to application of requirements on programs and projects.

EXPLANATION OF MAJOR CHANGES FOR FY 2013

There are no program changes.

ACHIEVEMENTS IN FY 2011

The NASA Engineering and Safety Center (NESC) conducted numerous critical assessments of NASA's highest risk projects and ensured safety and mission success. NESC assessments helped ensure the safe retirement of the Space Shuttle and the assembly completion of ISS. NESC conducted water landing tests for the Orion Multi-Purpose Crew Vehicle and large-scale structural testing to reduce mass in buckling-critical launch vehicle shell structures and help to mitigate future vehicle development risks.

NASA reviewed Space Shuttle lessons at a knowledge sharing forum on January 27, 2011, at KSC. In addition, the Shuttle Ground Operations Lessons Learned project has identified 119 lessons that will be archived in the Lessons Learned Information System. NASA also added to the system lesson entries with video interviews related to Shuttle ground processing knowledge sharing.

KEY ACHIEVEMENTS PLANNED FOR FY 2013

See project details below.

BUDGET EXPLANATION

The FY 2013 request is $182.4 million. This represents a $15.8 million decrease from the FY 2012 estimate ($198.2 million). The FY 2013 request includes:

SAFETY AND MISSION SUCCESS (SMS)

- $47.8 million for SMA, which establishes and maintains an acceptable level of technical excellence and competence in safety, reliability, maintainability, and quality engineering within the Agency;
- $98.6 million for the OCE, which assures the engineering excellence of the Agency, provides rapid, cross-Agency response to mission critical engineering issues, and develops program and project management and systems engineering skills within the Agency;
- $4.3 million for the OCHMO, which assures the medical technical excellence of the Agency; and
- $31.7 million for the IV&V Facility, which performs independent software analysis activities on NASA's most critical software systems.

SAFETY AND MISSION ASSURANCE (SMA)

SMA is responsible for establishing and maintaining an acceptable level of technical excellence and competence in safety, reliability, maintainability, and quality engineering within the Agency. SMA assures that the risk presented by either the lack of safety requirements or from the lack of compliance with safety requirements is analyzed, assessed, communicated, and used for proper decision making and risk acceptance by the appropriate organizational leader.

Fundamental to these responsibilities is the definition and execution of a robust and well-understood methodology and process for the application of the disciplines of safety, reliability and quality in defining the level of risk. SMA conducts a schedule of reviews and assessments that focus on the life cycle decision milestones for crucial NASA programs and projects and safety, reliability, and quality processes. Embodied in this program is a structured development of methodology and investigation into system attributes that improve the probability of mission success.

NSC is an important component of SMA and is responsible for consolidating SMA efforts Agency-wide in four key areas: SMA technical excellence, knowledge management, audits and assessments, and mishap investigation support.

In FY 2011, SMA organizations conducted safety reviews, and when necessary, independent technical assessments for all Space Shuttle and Launch Services Program missions. In addition, SMA experts independently analyzed the nuclear safety risk associated with the Mars Science Laboratory mission. The SMA project developed field programmable gate array radiation test methods now utilized by NASA flight projects and provided nondestructive evaluation assessments of critical space components, including composite structures, inflatable habitat structures, and cryogenic storage vessels. NASA's Orbital Debris program, which is responsible for monitoring the orbital debris environment, providing space vehicle risk assessments, and providing orbital debris assistance to both U.S. and international partners, was successfully implemented. SMA project produced an Engineering Risk Assessment Abort Assessment Guide, which documented current best practices for assessing the abort capabilities of NASA's potential crew launch systems. The SMA project also provided over 14,000 hours of Safety and Mission Assurance Technical Excellence training to 1,800 unique NASA learners.

SAFETY AND MISSION SUCCESS (SMS)

In FY 2013, the SMA program will continue to conduct safety reviews and independent technical assessments for NASA missions, including any newly selected missions using nuclear systems. Consistent with the NASA Authorization Act of 2010, SMA will enhance its orbital debris and counterfeit parts tracking and reporting programs. Counterfeited electrical components can cause failure resulting in loss of mission or, in the case of human flight missions, loss of life. The SMA program will publish assurance guidelines for the application of gallium nitride and silicon carbide semiconductor devices in high reliability, spaceflight applications. These technologies are viewed as potential enablers for radiation hardened and extreme temperature environment power and communication systems.

OFFICE OF THE CHIEF ENGINEER (OCE)

OCE promulgates policy and requirements for program and project management, for the engineering excellence of the Agency, system engineering methodology, and the Agency's system of engineering standards. OCE manages NESC, which is responsible for enabling rapid, cross-Agency response to mission critical engineering, and safety issues at NASA and for improving the state of practice in critical engineering disciplines. Established in FY 2003 in response to the Columbia accident, NESC performs value-added independent testing, analysis, and assessments of NASA's high-risk projects to ensure safety and mission success. SMS funding provides for the core NESC organization of senior engineering experts from across the Agency, including the NASA Technical Fellows, and technical discipline teams comprised of experts from NASA, industry, and academia. As an Agency-wide resource with an independent reporting path and independent funding from the OCE, NESC helps ensure safety and objective technical results for NASA.

OCE also sponsors the Academy of Program/Project and Engineering Leadership to develop program and project management and systems engineering skills. This academy provides a formal training curriculum designed to address four career levels from recent college graduate to executive. OCE's training provides direct support to project teams in the field through workshops, coaching, interactions with technical experts, and through conferences, forums, and publications. In addition, OCE manages the Space Act authorized Inventions and Contributions Board, which is chartered with recognizing and rewarding innovation within the Agency.

In FY 2011, OCE increased awareness and usage of voluntary consensus standards, in support of OMB Circular A-119, "Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities."

In FY 2013, NESC will provide critical independent testing and analysis to ensure flight crew safety and mission success as NASA transitions to the new human spaceflight programs.

SAFETY AND MISSION SUCCESS (SMS)

OFFICE OF THE CHIEF HEALTH AND MEDICAL OFFICER (OCHMO)

OCHMO promulgates Agency health and medical policy, standards, and requirements, assuring the medical technical excellence of the Agency. OCHMO assures the physical and mental health and well-being of the NASA workforce, and assures the safe and ethical conduct of NASA-sponsored human and animal research. The office monitors the implementation of health and medical related requirements and standards in all developmental human space flight programs through designated discipline experts at NASA Centers. OCHMO provides oversight of medical and health related activities in operational human space flight through Center-based discipline experts and clinical boards. Ongoing medical and health discipline professionalism and licensure are supported through annual certified continuing medical education activities and flight surgeon education. Clinical currency is maintained through OCHMO sponsored, university-based physician training programs. NASA's biomedical research programs in support of human space flight are guided by OCHMO-developed health and medical standards.

In FY 2011 NASA rolled out the Electronic Health Records System (EHRS) at four NASA Centers. This tool will enhance the effectiveness of preventive exams and OSHA-required surveillance exams for employees. This system has disaster recover back-up and mirroring capability, and will increase chart accuracy, maintain Health Insurance Portability and Accountability Act-mandated privacy requirements, and reduce potential medical errors through direct import of laboratory data via direct interface capability.

In FY 2013 NASA will have successfully completed implementation of the EHRS at all Centers, component facilities, and JPL, as allowed by their contract. Non-attributable data is being generated and collected on the well-being of the NASA population and will help ensure the safety of employees in all types of exposure-related groups. The data collected over time will demonstrate trends in the health of our NASA family and facilitate key medical decisions based on sound epidemiological data for the greatest good of the workforce.

INDEPENDENT VERIFICATION AND VALIDATION (IV&V)

The NASA IV&V project provides software expertise, services and resources to improve the likelihood for safety and mission success for NASA's programs, projects, and operations while protecting the health and safety of NASA's workforce. The IV&V project analyzes mission software, independently from the developing organization, on NASA's most critical software systems to assure safety and mission success of those systems.

IV&V applies state-of-the-art analytical methods and techniques, complemented with effective software engineering tools and best practices, to evaluate the correctness and quality of critical and complex software systems throughout the project's system development life cycle.

IV&V provides resources and software expertise to other SMA elements in support of independent evaluations of software related approaches and processes. The IV&V project supports sustaining software

SAFETY AND MISSION SUCCESS (SMS)

technical excellence in the SMA community, sustaining software domain knowledge within the SMA organization, and in formulating software development improvement recommendations to the Agency.
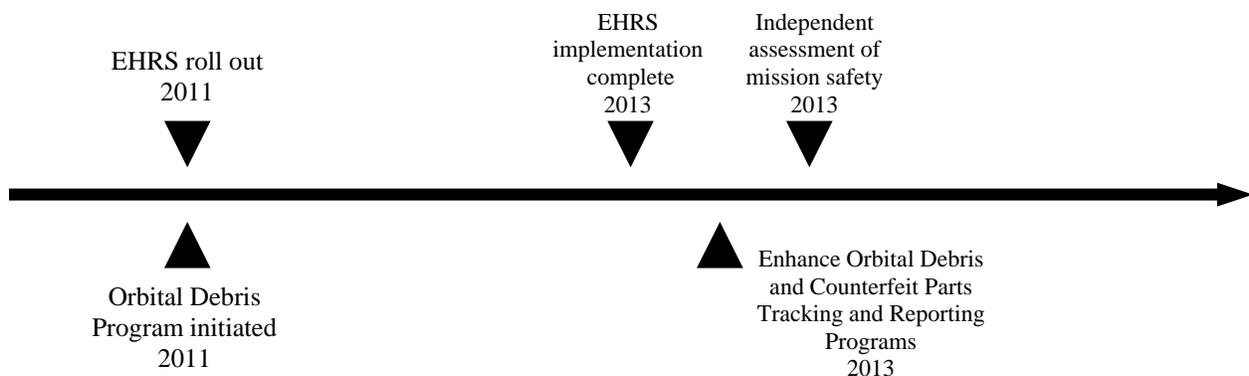
Independently testing critical system software is a state-of-the-practice analytical technique that enhances the likelihood of discovering the most difficult kinds of problems in mission software. Critical system software problems can surface because of multiple complex interactions, under specific environmental and operational conditions, and under unique software configurations. The IV&V program's independent test capability enables:

- Advanced testing and simulations of NASA's mission and safety critical software;
- Testing and evaluation of robotics and intelligent systems;
- Capability development within the systems engineering disciplines;
- Central computing platform for commonly used software assurance tools by engineers; and
- Training and education for workforce and students.

In FY 2011, NASA IV&V provided expertise to 22 projects and seven NASA Centers. IV&V provided eight favorable launch/operational readiness votes for GRAIL, Juno, Glory, three Space Shuttle Program launches, and two ISS software stage transitions. IV&V provides a favorable readiness vote when all IV&V-identified issues and risks have been satisfactorily resolved by the customer.

In FY 2013, NASA will continue to provide expert software analysis on NASA's safety and mission critical software to help assure safety and mission success. The IV&V project will continue to enhance its technical capabilities and focus on continuous improvement and value.

Program Schedule

EHRS roll out 2011

EHRS implementation complete 2013

Independent assessment of mission safety 2013

Orbital Debris Program initiated 2011

Enhance Orbital Debris and Counterfeit Parts Tracking and Reporting Programs 2013

SAFETY AND MISSION SUCCESS (SMS)

INDEPENDENT REVIEWS

Review Type	Performer	Last Review	Purpose/Outcome	Next Review
Safety	Aerospace Safety Advisory Panel		Evaluate NASA's safety performance and advises the Agency on ways to improve that performance.	January 2012 (conducted quarterly)

AGENCY INFORMATION TECHNOLOGY SERVICES (AITS)

FY 2013 BUDGET

Budget Authority (in $ millions)	Actual FY 2011	Estimate FY 2012	FY 2013	Notional			
				FY 2014	FY 2015	FY 2016	FY 2017
FY 2013 President's Budget Request	**145.0**	**159.1**	**152.0**	**152.0**	**152.0**	**152.0**	**152.0**
IT Management	15.0	14.6	**10.5**	10.5	10.5	10.5	10.5
Applications	75.3	67.8	**67.8**	67.8	67.8	67.8	67.8
Infrastructure	54.7	76.6	**73.7**	73.7	73.7	73.7	73.7
Change From FY 2012 Estimate	--	--	**-7.1**				
Percent Change From FY 2012 Estimate	--	--	**-4.5%**				

The IT Infrastructure Integration Program (I3P) is transforming NASA's IT Infrastructure services from a center-based model to an enterprise-based management and provisioning model. The "Discover" supercomputer will be part of the seamless, end-to-end data network designed to reduce cost, implement consistent operation procedures and processes, and improve security. With nearly 15,000 processors and a peak performance of nearly 160 trillion operations per second, Discover is at the heart of the NASA Center for Climate Simulation.

AITS program remains a critical enabling capability for the Agency. The AITS program is dedicated to ensure IT excellence so that every mission can achieve success within NASA's complex environment. The AITS mission is to improve management and security of IT systems while systematically improving the efficiency, collaboration capabilities, and streamlined service delivery and visibility for the entire Agency.

AITS remains focused on centrally coordinating and integrating investments built and managed by individual Centers within NASA's federated model to improve security, achieve cost efficiencies, and provide standardized services. AITS also continues to develop and maintain NASA's target architecture and optimization objectives. Further, AITS continuous improvement involves transforming the infrastructure from a Center-based delivery model to one that is Agency-based through the implementation of an IT Service model based on the Information Technology Infrastructure Library® 3.0. This is the industry's guide to applying strategic thinking to IT service management. AITS also supports federal green IT and data center consolidation efforts. Core capabilities within AITS are the NASA Enterprise Application Competency Center (NEACC), NASA Data Center, Security Operations Center, and the IT Discovery and Application Management Services.

The AITS program manages NASA's Web sites and services which facilitate the Agency's statutory requirement to disseminate information concerning its activities and missions results. NASA Web services enhance business and technical agility, eliminate vendor specific dependencies, drive down

AGENCY INFORMATION TECHNOLOGY SERVICES (AITS)

operational overhead for Web presence, consolidate NASA's Web infrastructure, drive down the cost of custom Web/on-demand services for missions, programs, and projects, increase NASA IT security, explore shared services across NASA Centers, and improve online customer service delivery through innovative technology. The program also implements services to allow citizens, collaborators, and other partners to use existing social media and other accounts to access NASA systems.

Under the AITS program, the Agency continues to improve its network security with an enterprise approach to perimeter control and maintenance, including the use of Personal Identification Verification smartcards for remote perimeter access. In addition, AITS is consolidating several NASA Center-specific applications into enterprise-level services, leveraging cloud offerings where possible.

The AITS program also enables NASA's mobile workforce to work anytime, anywhere using NASA devices or personal devices while ensuring adequate security of NASA's data and information.

EXPLANATION OF MAJOR CHANGES FOR FY 2013

There are no program changes.

ACHIEVEMENTS IN FY 2011

The Agency-implemented the IT Infrastructure Integration Program (I3P). It incorporates Agency Consolidated End-user Services, Enterprise Applications Service Technologies, Enterprise Service Desk, and NASA Integrated Communications Services contracts, streamlines operations, gains efficiencies, and provides expected costs savings. The key to the new IT infrastructure transformation includes the transition from a Center-based, locally operated approach to an Agency-centralized, enterprise-based approach to consolidate the decision authority back to the Agency Headquarters and, thereby, centralize decisions and maximize efficiencies and cost savings. For example, NASA has reduced the total number of data centers from 79 to 54, which resulted in the reduction of energy costs through more efficient use of the existing conditioned spaces, employing best practices in room design, proper temperature settings, optimal rack and floor space densities and life cycle replacement of old and inefficient hardware. NASA also achieved significant (approximately $4.0 million) cost savings and efficiencies by retiring NASA's data center mainframe following the last planned Shuttle flight. While the Space Shuttle program was a major customer of mainframe computing services, many older administrative systems also relied on those services.

AGENCY INFORMATION TECHNOLOGY SERVICES (AITS)

KEY ACHIEVEMENTS PLANNED FOR FY 2013

AITS will invest in a technology upgrade for an electronic forms management system to replace NASA's antiquated and unsupported software package for Agency forms management. The forms system will manage over 5,000 forms and the system will be compatible with newer software, enable digital certificate signatures, and comply with Section 508 requirements.

Federal e-Travel Services will migrate to a new service provider. An AITS and OCFO partnership will implement and integrate the new end-to-end E-Travel solution.

BUDGET EXPLANATION

The FY 2013 request is $152.0 million. This represents a $7.1 million decrease from the FY 2012 estimate ($159.1 million). The FY 2013 request includes the support for consolidation of 100 Center-based applications into ten enterprise services, saving IT service costs of $5 million per year in the out years.

Projects

CONSOLIDATED CORPORATE NETWORK OPERATIONS CENTER

Consolidated Corporate Network Operations Center is building a seamless, integrated network operations system and operations processes capable of managing the corporate end-to-end network.

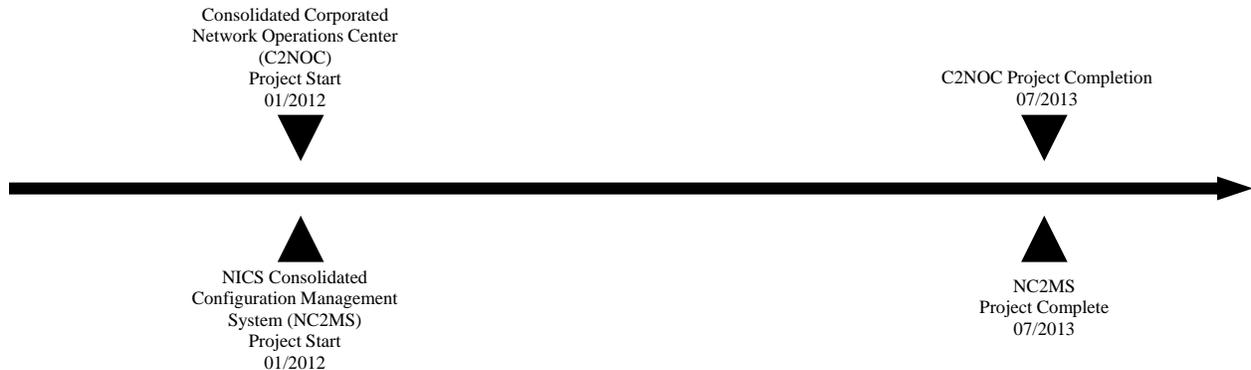## NICS CONSOLIDATED CONFIGURATION MANAGEMENT SYSTEM

NICS Consolidated Configuration Management System includes management of servers, database, and tools that will facilitate IT infrastructure library processes and procedures.

Both projects are scheduled to start January 1, 2012 and complete in July 2013.

AGENCY INFORMATION TECHNOLOGY SERVICES (AITS)

Program Schedule

Consolidated Corporated
Network Operations Center
(C2NOC)
Project Start
01/2012

C2NOC Project Completion
07/2013

▼   ▼

▲   ▲

NICS Consolidated
Configuration Management
System (NC2MS)
Project Start
01/2012

NC2MS
Project Complete
07/2013

Program Management & Commitments

NICS Consolidated Configuration Management System includes the formulation, implementation and transition to operations of a consolidated NICS CM system. It also includes management of servers, database, and tools that will facilitate IT infrastructure library processes and procedures.

Acquisition Strategy

AITS will continue to consolidate legacy contracts and data centers and increase the use of cloud computing to align with strategies developed by the Administration.

Under the Web Enterprise Services Technologies contract solicitation acquisition, NASA will provide contracts for cloud-based Web infrastructure that provides NASA with standards, open source, secure, shared Web infrastructure and environment. The contract will provide solutions that are often cost effective through the utilization of shared services, implementation of innovative solutions that are user friendly, provide self service, and are readily accessible for the Agency's missions. The NASA Centers and mission directorates will be able to utilize the consolidated infrastructure through existing development contracts and still show value of cost effectiveness, improved customer service, and compliance with Federal mandates.

STRATEGIC CAPABILITIES ASSETS PROGRAM (SCAP)

FY 2013 BUDGET

Budget Authority (in $ millions)	Actual FY 2011	Estimate FY 2012	FY 2013	Notional FY 2014	FY 2015	FY 2016	FY 2017
FY 2013 President's Budget Request	29.4	29.3	28.0	28.0	28.0	28.0	28.0
Change From FY 2012 Estimate	--	--	-1.3				
Percent Change From FY 2012 Estimate	--	--	-4.4%				
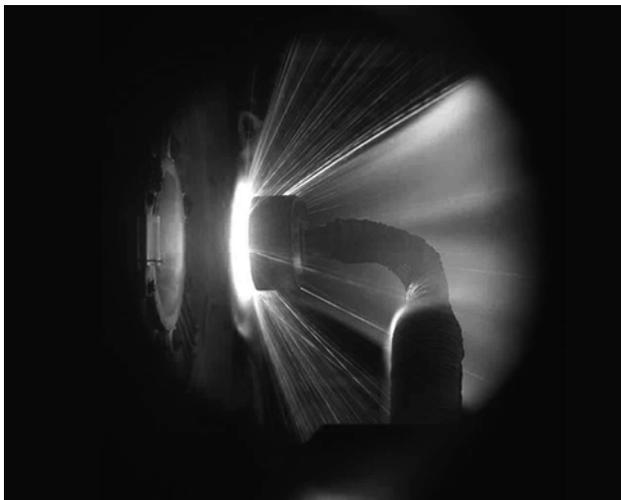
The Arc Jet Facility at ARC is sustained under the SCAP funding as it is considered a critical asset to the Agency and the Nation. The facility provides extremely high power output to test articles for extreme space environmental conditions during entry, descent, and landing. A thermal protection system specimen is shown.

Initiated in FY 2008, SCAP establishes an alliance between all Centers with like assets, makes recommendations on disposition of capabilities no longer required, identifies re-investment/re-capitalization requirements within and among classes of assets, and implements changes. SCAP reviews the Agency's assets and capabilities each year to ensure the requirements continue to be valid.

SCAP ensures test facilities identified as essential by the Agency are in a state of readiness. It maintains the skilled workforce and performs essential preventative maintenance to keep these facilities available to meet program requirements. Core capabilities supported within SCAP are thermal vacuum chambers, simulators, and the Arc Jet Facility.

SCAP will ensure maximum benefit across the Government by broadening its alliances outside of the Agency for capabilities (e.g., thermal vacuum chambers). This has been accomplished by initiating a new collaborative working group, the Space Environment Test Alliance Group, which includes NASA, DoD, and other entities. The members gain awareness of capabilities across agencies, share best practices, provide technical support, and refer test programs to facilities that are better suited. SCAP has established a positive relationship between DoD and NASA in the arc jet test area.

STRATEGIC CAPABILITIES ASSETS PROGRAM (SCAP)

EXPLANATION OF MAJOR CHANGES FOR FY 2013

There are no program changes.

ACHIEVEMENTS IN FY 2011

NASA decided to consolidate its arc jet testing capabilities at ARC. SCAP began consolidation transition planning of the JSC Arc Jet testing capability, which will shut down operations in FY 2013. NASA anticipates annual operational cost savings of over $5 million per year through this consolidation effort.

SCAP completed and verified the new vibration test capability at the Space Power Facility at GRC's Plum Brook Station in Sandusky, OH. The new vibration test capability includes the world's most powerful reverberant acoustic test chamber and the world's most powerful mechanical vibration facility. This new capability provides a one-stop-shop for a fully integrated spacecraft development and qualification testing.

The Space Environment Test Alliance Group assisted the Science Mission Directorate by identifying potential re-utilization of the K-Site thermal vacuum chamber at GRC Plum Brook Station for a Planetary Surface Simulation Facility for Regolith testing. This resulted in a potential savings of up to $60 million when compared to new construction within the Agency or in commercial industry.

KEY ACHIEVEMENTS PLANNED FOR FY 2013

SCAP will continue to sustain the strategic technical capabilities needed by NASA for successful missions. SCAP will institute consistency in reimbursable pricing policies, perform quarterly program performance reviews, continually improve business practices, and provides a forum for cooperation between all Centers within asset classes.

SCAP will continue to develop and implement disposition plans for assets that are no longer needed.

STRATEGIC CAPABILITIES ASSETS PROGRAM (SCAP)

BUDGET EXPLANATION

The FY 2013 request is $28.0 million. This represents a $1.3 million decrease from the FY 2012 estimate ($29.3 million). The FY 2013 request includes:

- $11.4 million for simulators to support NASA's aeronautics fundamental research and aviation safety;
- $6.6 million for thermal vacuum and acoustic chambers to support launch and space environmental testing; and
- $10.0 million for the Arc Jet to support simulation of high velocity atmospheric entry conditions for design, development, test, and evaluation of thermal protective materials, vehicle structures, and aerothermodynamics.

Projects

SIMULATORS

This capability includes an array of research and development crewed flight simulator assets at ARC and LaRC that are in the operations phase. Simulators are critical components of the success of NASA's aeronautics research in the areas of fundamental aeronautics and aviation safety. Principal assets include: the vertical motion simulator at ARC, a large motion system, laboratories, and equipment, the Cockpit Motion Facility at LaRC and its supporting suite of simulators (the differential maneuvering simulator and the visual motion simulator), and central support facilities for aeronautics and spaceflight vehicle research. These capabilities provide scientists and engineers with tools to explore, define, and resolve issues in both vehicle design and missions operations.

THERMAL-VACUUM, VACUUM, AND ACOUSTIC CHAMBERS

This capability includes several assets that simulate conditions during launch and in space environments at NASA facilities (GRC, GSFC, JPL, JSC, KSC, MSFC, and GRC Plum Brook Station). These assets have minimum outline dimensions of 10 by10 feet and can accommodate a spacecraft. These chambers have the capability of producing pressures down to 10^2 torr or lower and thermal shrouds capable of liquid nitrogen temperatures or lower. Acoustic chambers are capable of generating approximately 150 decibels at frequencies in the range of 25 to 1000 Hertz. These chambers perform significant risk mitigation for most of NASA payloads launched into space as well as many in other government agencies such as NOAA and DoD.

STRATEGIC CAPABILITIES ASSETS PROGRAM (SCAP)

ARC JET

This capability includes assets that provide simulated high temperature, high velocity environments, and that support the design, development, test, and evaluation activities of thermal protection materials, vehicle structures, aerothermodynamics, and hypersonics at ARC and JSC. A gas (typically air) is heated and accelerated to supersonic/hypersonic speeds by a continuous electrical arc. This high temperature gas passes over a test sample, and produces an approximation of the surface temperature and pressure environments experienced by a vehicle on atmospheric entry.

Arc jet testing has been critical in the safe return from orbit of space shuttles with tile damage; providing essential validation of materials for the Mars entry missions such as Mars Science Laboratory. The Dragon spacecraft, made by the commercial company Space Exploration Technologies, also completed its heat shield development testing at NASA's Arc Jet Facility.

Program Schedule
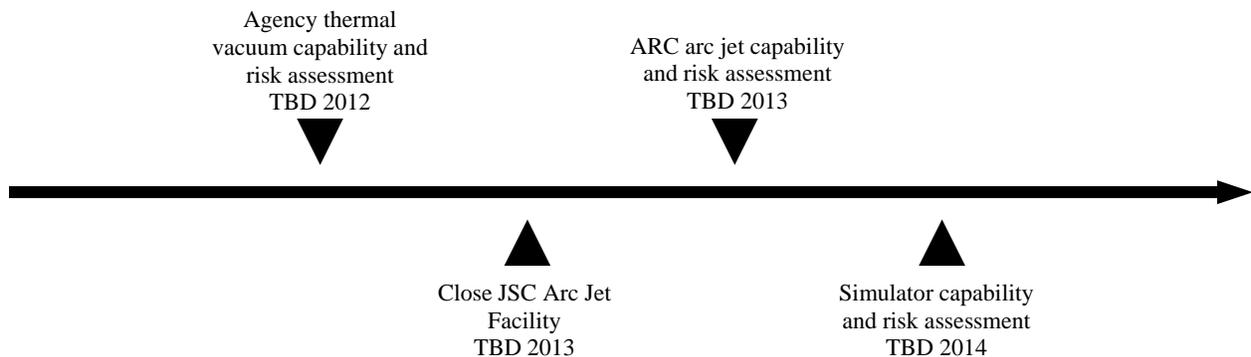
Agency thermal vacuum capability and risk assessment
TBD 2012

ARC arc jet capability and risk assessment
TBD 2013

Close JSC Arc Jet Facility
TBD 2013

Simulator capability and risk assessment
TBD 2014

STRATEGIC CAPABILITIES ASSETS PROGRAM (SCAP)

Program Management & Commitments

Project/Element	Provider
Simulators	Provider: ARC, LaRC Project Management: ARC, LaRC NASA Center: ARC, LaRC Cost Share: DoD, FAA, commercial organizations
Thermal-Vacuum, Vacuum, and Acoustic Chambers	Provider: GRC, GSFC, JPL, JSC, MSFC Project Management: GRC, GSFC, JPL, JSC, MSFC NASA Center: GRC, GSFC, JPL, JSC, MSFC Cost Share: DoD, commercial organizations
Arc Jets	Provider: ARC Project Management: ARC NASA Center: ARC Cost Share: DoD, Commercial organizations

INDEPENDENT REVIEWS

NASA has extended the assessment schedule from bi-annual to tri-annual. This extension was necessary due to budget challenges. Extending time between assessments was determined to pose the lowest risk to program requirements within the allocated budget.

Review Type	Performer	Last Review	Purpose/Outcome	Next Review
Performance	Jacobs Engineering	9-Mar	Independent assessment of GSFC, JSC, and JPL thermal vacuum technical capability and identify high risk areas	2012
Performance	Jacobs Engineering	10-Sep	Independent assessment of ARC arc jet technical capability and identify high risk areas	2013
Performance	Jacobs Engineering	10-Jun	Independent assessment of GRC and MSFC thermal vacuum technical capability and identify high risk areas	2013
Performance	Jacobs Engineering	11-Mar	Independent assessment of ARC and LaRC simulator technical capability and identify high risk areas	2014

HEADQUARTERS BUDGET BY OFFICE

AGENCY MANAGEMENT BUDGET BY HEADQUARTERS OFFICE

($ in millions in full cost)[1]	Actual FY 2011	Estimate FY 2012	FY 2013	Notional FY 2014	FY 2015	FY 2016	FY 2017
Science	27.8	28.6	27.6	27.6	27.6	27.6	27.6
Aeronautics Research	6.7	7.1	6.8	6.8	6.8	6.8	6.8
Space Technology	28.2	28.7	27.7	27.7	27.7	27.7	27.7
Human Exploration Office	5.2	5.8	5.6	5.6	5.6	5.6	5.6
Education	2.5	2.7	2.6	2.6	2.6	2.6	2.6
Mission Directorates	**70.4**	**73.0**	**70.4**	**70.4**	**70.4**	**70.4**	**70.4**
Office of the Administrator	29.7	28.5	23.5	23.5	23.5	23.5	23.5
Chief Engineer	4.6	4.7	4.6	4.6	4.6	4.6	4.6
Chief Financial Office	26.2	27.3	26.5	26.5	26.5	26.5	26.5
Chief Health and Medical Office	1.3	1.5	1.5	1.5	1.5	1.5	1.5
Chief Information Office	6.8	8.3	8.6	8.6	8.6	8.6	8.6
Chief Scientist	0.0						
Communication	14.5	13.8	12.9	12.9	12.9	12.9	12.9
Diversity and Equal Opportunity	4.8	3.9	4.5	4.5	4.5	4.5	4.5
General Counsel	8.9	8.5	8.3	8.3	8.3	8.3	8.3
Independent Program and Cost Evaluation[2]							
International and Interagency Relations	11.7	12.1	11.9	11.9	11.9	11.9	11.9
Legislative and Intergovernmental Affairs	3.8	3.9	3.7	3.7	3.7	3.7	3.7
Safety and Mission Assurance	6.9	6.7	6.5	6.5	6.5	6.5	6.5
Small Business Programs	1.6	1.7	1.7	1.7	1.7	1.7	1.7
Staff Offices	**120.8**	**120.9**	**114.0**	**114.0**	**114.0**	**114.0**	**114.0**
Agy Operations/JPL NASA Mgt Office	6.1	6.4	8.2	8.2	8.2	8.2	8.2
Human Capital Mgt	30.3	30.2	29.2	29.2	29.2	29.2	29.2
Headquarters Operations	113.7	115.1	113.9	113.9	113.9	113.9	113.9
Strategic Infrastructure	16.5	16.3	15.0	15.0	15.0	15.0	15.0
Internal Controls and Mgt Systems	2.2	2.1	2.1	2.1	2.1	2.1	2.1
Procurement	7.1	7.2	7.1	7.1	7.1	7.1	7.1
Mission Support Directorate Front Office	4.1	2.7	2.2	2.2	2.2	2.2	2.2
NASA Shared Services Center	13.4	12.4	12.9	12.9	12.9	12.9	12.9
Protective Services	16.9	17.2	16.8	16.8	16.8	16.8	16.8
Mission Support	**210.4**	**209.5**	**207.4**	**207.4**	**207.4**	**207.4**	**207.4**
Total Agency Management	**401.6**	**403.3**	**391.8**	**391.8**	**391.8**	**391.8**	**391.8**

(1) In accordance with the President's proposal to implement a five-year non-security discretionary spending freeze, budget figures shown for years after FY 2014 are notional and do not represent policy. Funding decisions will be made on a year-by-year basis.
(2) Starting in FY 2012, work content for the Independent Program and Cost Evaluation office was moved to the Office of Administrator.

HEADQUARTERS TRAVEL BUDGET BY OFFICE

HEADQUARTERS TRAVEL BUDGET BY OFFICE

($ in millions)	Actual FY 2011	Estimate FY 2012	FY 2013
Science	1.7	1.6	1.6
Aeronautics Research	0.8	0.6	0.6
Space Technology	1.2	1.2	1.2
Human Exploration Office	2.9	2.1	2.1
Education	0.3	0.5	0.5
Mission Directorates	**6.8**	**6.0**	**6.0**
Office of the Administrator[1]	0.4	1.2	1.2
Chief Engineer	1.2	0.9	0.9
Chief Financial Office	0.4	0.3	0.3
Chief Health and Medical Office	0.1	0.1	0.1
Chief Information Office	0.7	0.6	0.6
Communication	0.3	0.3	0.2
Diversity and Equal Opportunity	0.1	0.1	0.1
General Counsel	0.1	0.1	0.1
Independent Program and Cost Evaluation[1]	1.0	n/a	n/a
International and Interagency Relations	0.7	0.7	0.6
Legislative and Intergovernmental Affairs	0.1	0.1	0.1
Safety and Mission Assurance	0.3	0.3	0.3
Small Business Programs	0.1	0.1	0.1
Staff Offices	**5.4**	**4.6**	**4.5**
Agency Operations/JPL NASA Management Office	0.1	0.1	0.1
Human Capital Management	1.3	1.0	0.9
Headquarters Operations	0.1	0.1	0.1
Strategic Infrastructure	0.4	0.5	0.4
Internal Controls and Management Systems	0.0	0.1	0.1
Procurement	0.1	0.2	0.2
Mission Support Directorate Front Office	0.2	0.2	0.1
Protective Services	0.2	0.1	0.1
Mission Support	**2.4**	**2.2**	**1.9**
Total Headquarters Travel Budget	**14.6**	**12.8**	**12.4**

(1) Starting in FY12, work content for the Independent Program and Cost Evaluation office was moved to the Office of Administrator.

HEADQUARTERS FTE ASSIGNMENTS BY CENTER

CIVIL SERVANT FULL TIME EQUIVALENT DISTRIBUTION BY HEADQUARTERS OFFICE

	Actual				Estimate							
	FY 2011				**FY 2012**				**FY 2013**			
Headquarters	**Total FTE**	**SES**	**Non-Career**	**Contract WYE**	**Total FTE**	**SES**	**Non-Career**	**Contract WYE**	**Total FTE**	**SES**	**Non-Career**	**Contract WYE**
SMD	160	22		58	155	19		50	155	19		50
ARMD	39	8		14	40	9		10	39	9		10
ST	30	3		3	32	1		4	32	1		4
HEO	164	15		28	164	18		76	158	18		76
EDUC	14	2		21	15	3		22	15	3		22
Mission Directorates	**407**	**50**	**0**	**124**	**406**	**50**	**0**	**161**	**399**	**50**	**0**	**161**
Office of the Administrator	25	5	8	0	63	12	8	12	63	12	8	12
Chief Engineer	25	8		26	24	8		15	24	8		15
CFO	105	9	1	40	104	9	1	35	104	9	1	35
CHMO	8	1			9	1		4	9	1		4
CIO	40	6		27	48	8		26	48	8		27
Communications	53	5	3	30	49	5	3	28	49	5	3	28
Diversity and Equal Opp.	19	3		7	18	3		3	18	3		3
GC	43	6	2		40	6	2		40	6	2	
Ind. Prog. and Cost Eval.[1]	44	5		7								
Int'l. and Inter-Agy Relations	52	7		6	52	7		6	52	7		6
Legis. and Intergov. Affairs	27	2	4		27	4	4		26	4	4	
SMA	39	6		4	35	6		19	35	6		19
Small Business Programs	5	1		3	5	1		3	5	1		3
Staff Offices	**485**	**64**	**18**	**150**	**474**	**70**	**18**	**151**	**473**	**70**	**18**	**152**
NASA Mgt Office	25	1		6	27	1		2	25	1		2
Human Capital Mgt.	36	4		17	36	5		7	35	5		7
HQ Operations	105	3		324	111	4		304	104	4		293
Infrastructure	61	7		6	57	7		16	57	7		16
Int. Controls and Mgt. Sys.	10	1		1	10	0		1	9	0		1
Procurement	36	3			33	4			33	4		
Msn. Supp. Dir. Front Ofc.	14	2			13	4			10	4		
Protective Services	48	1		3	46	2		8	45	2		8
Mission Support	**335**	**22**	**0**	**357**	**333**	**27**	**0**	**338**	**318**	**27**	**0**	**327**
NASA HQ Total	**1,227**	**136**	**18**	**631**	**1,213**	**147**	**18**	**650**	**1,190**	**147**	**18**	**640**

(1) Starting in FY 2012, work content for the Independent Program and Cost Evaluation office was moved to the Office of Administrator.